



Known officially as the Stratofortress, the mighty B-52 is sometimes referred to as a dragon for its size, dominance, and relentlessness. The B-52 is also affectionately called a BUFF (Big Ugly Fat Fellow—or **Buff**, depending on the company you keep) for its ungainly appearance. The B-52 model H (B-52H) is the only model of the plane that is capable of carrying nuclear weapons.

DECLASSIFIED

THE DRAGON IS ALIVE

The five-person crew of a B-52 Stratofortress is responsible for flying a 55-year-old dragon for 24 hours at a time at 650 miles per hour above some of the world's most dangerous countries—without navigation displays, modern computers, or a flushing toilet. And they like it.

*Prep time
Andersen Air Force Base, Guam, South Pacific
February 2000*

I run my finger down the schedule until I reach my name and assignment: *Major Brad Haynes, Korean Peninsula*. In 35 hours, I will board a 1961 B-52H Stratofortress—the backbone of the U.S. strategic bomber force—as part of a standard 24-hour Air Force strategic deterrence mission in response to a nuclear test in North Hamgyong Province. It's time to show North Korea who's the boss.

But first, my crew—call sign Havoc 92—has to understand every detail of our assignment, which will cover 9,600 nautical miles, cost millions of dollars, and involve multiple countries. Although the purpose of this mission is to be seen and heard by North Koreans—not to actually attack them—our first step is still to select a target. In this case, the target is to fly to the southern border of the Korean Demilitarized Zone (DMZ), the 2.5-mile-wide buffer between North and South Korea, to make our presence known to our adversary—and to our allies (Japan, Taiwan, and South Korea).

We gather in the windowless, vault-like mission planning room, the five of us wearing flight suits and seated around a conference table. Our average age is 26. Jane, the pilot, is our aircraft commander. Paul is the copilot, and George is the radar navigator. Richard is the electronic warfare officer—also called the EWO or the “defender” because he electronically jams and scrambles the locating and targeting capabilities of the enemy's missiles and fighter jets. Then there's me. I am the other navigator, also called the “offender” because I offend the enemy when dropping precision-guided bombs on them.

Together we work backward from our target, discussing mission support assets, obtaining diplomatic clearances, air traffic, and weather. The pilot team breaks off to learn more about our aircraft, fuel, and takeoff data. George and I, as the navigation team, start planning routes, weapons needed, scheduling, and food menus. Richard looks at potential enemy threats, such as surface-to-air missiles and fighter aircraft. He also considers how to use allied aircraft to help with jamming the enemy's radar and targeting capabilities.



A B-52 refuels from a KC-135; aerial refueling gives the B-52 a distance range limited only by the endurance of its crew. (Photo: U.S. Air Force)

Chair Force

Two hours later, we come back together to share everything we've learned. We call this "chair flying" the mission. We run through the whole assignment, beginning with waking up in the morning and ending with going to sleep 24 hours later.

I am the navigator, also called the "offender" because I offend the enemy when dropping precision-guided bombs on them.

In ad-nauseam detail we discuss every possible action, reaction, situation, and emergency procedure that might occur during our mission. We speak all voice commands to make sure we understand how they sound. We scrawl notes and equations on wall-sized white boards. We pick apart every flight checklist, manipulating them until they're correct for the mission at hand.

I use latitude and longitude coordinates to hand-draw navigation air charts of our route, which leaves Andersen Air Force Base and travels northwest above the Pacific to the Japan Identification Zone, over the Sea of Japan, west into

Korea, and then back to Guam. I distribute the charts to each crew member.

These charts—and my job as the navigator—are essential because a B-52 doesn't have any type of navigation display. The computers inside the plane have significantly less processing power than an Apple iPhone 7 and show only numerical coordinates, not moving map displays. (However, the B-52's computers seem state-of-the-art compared with its lack of other amenities; this plane doesn't even have a microwave oven.)

During the chair fly, I also distribute hand-drawn weapons cards that depict the characteristics—air speeds, types, loads, etc.—of the weapons chosen for a bomb run on our selected target. Even though we're not dropping bombs on this particular mission, we still go through a no-weapons version of this scenario. Enforcing correct checklist procedures is an important part of a deterrence mission.

Our chair fly lasts nearly three hours and ends when the entire crew understands the entire mission backward and forward.

I head to the mess hall for dinner. I am not tempted by the Thai offerings or spicy Mexican burritos, both of which might haunt me during our imminent mission. I opt for the most bland item on the menu: pasta. I add a buttered roll and a



A view into the cockpit of a B-52 shows three of the plane's five crew members—the pilots and the EWO. The navigators sit downstairs. (Photo: U.S. Air Force)

side of steamed vegetables. I chug several glasses of water in an effort to get hydrated.

It's easy to confuse yellow Gatorade with an empty Gatorade bottle that's been filled up with a certain bodily fluid. No one wants to swig from the wrong bottle.

I also fill up a couple-gallon water jug to take on the plane the next morning and grab several blue Gatorades. As much as I like the lemon-ice flavor, 18 hours into a mission, it's easy to confuse yellow Gatorade with an empty Gatorade bottle that's been filled up with a certain bodily fluid. No one wants to swig from the wrong bottle.

Go time: o'dark-thirty

The crew meets at the chow hall at 4:15 a.m. before gathering in the office for a weather briefing three hours before takeoff. At the Life Support building, officers go through each crew member's personal equipment, which includes a helmet, oxygen mask, survival vest, life preserver, and jackets.

For the next 24 hours, we'll be wearing our fire-retardant flight suits, which are *not* individually temperature controlled. Right now the air on the ground at base is 85 degrees, but in a few hours, we'll be shivering inside a below-freezing cockpit. I make sure to pack a down jacket.

Before leaving the Life Support building, I use the bathroom—it's my last opportunity to use a toilet that actually flushes. On the B-52, we use the "honey bucket"—a four-inch yellow bowl with a two-foot hose connecting it to a five-gallon jerrican that sits on the floor, just inches from the navigator's seat. Defecation is not an option. I swallow a couple antidiarrheals.

The crew boards a Bluebird bus with no airconditioning. We throw our equipment in the first several rows, put down the windows, and take a seat for the 15-minute drive to our plane. As we move slowly—15 mph—down the taxiway, we pass by dozens of sleeping B-52s: The Memphis Belle, Destination Unknown, The Last Laugh, and others. Finally, we reach ours: The Devil's Own. I feel my heart beat faster. This is happening.

I step off the bus. Our dragon's hulking black form looms above me. Her wings, which hold more than 300,000 pounds of fuel, droop toward the ground. In her shadow, I find comfort in her decades of steadfast reliability.

The crew chief—the plane’s caretaker, whose name is stenciled on her side—informs us that the No. 5 engine is “slow to start,” the No. 2 main tank fuel gauge is “stuck,” the left multi-functional display is “not working”—but nevertheless, The Devil’s Own is the best plane in the line to fly!

If we were flying an armed mission, I would verify that all 70,000 pounds of weapons were attached correctly.

The crew breaks, and I walk around the airplane, which is as wide as a football field. I feel her presence, am inspired by her years of service, and begin going through my checklist: bomb bay (internal weapons storage) doors attached and pinned; hundreds of circuit breakers in their correct positions; wires connected; and then the most important part: checking the weapons areas.

I grab a ladder from the crew chief and climb ten feet to see where the B-52’s weapons would ordinarily be secured below her wings and in her belly. If we were flying an armed mission, I would verify that all 70,000 pounds of weapons were attached correctly and that all fusing wires were routed correctly and showing green.

But because we are on an unarmed deterrence mission, instead I check to see that the wings and bomb bay are appropriately bare and that the equipment that would ordinarily secure weapons is in its correct place.

After 30 minutes of preflight and weapons checks, I climb into the cockpit through a hatch at the bottom of the plane and am hit by a wave of stifling 120-degree air. This painted-black metal plane has been baking in the sun for hours on the concrete. The two windows near the pilots’ seats do little to ventilate the stuffy interior.

The dragon comes to life

After all five of us are situated in the two-level cockpit—three upstairs and two down—we begin the process of getting air and power into the plane. Thousands of switches, circuit breakers, levers, and pulleys must be set in their correct positions to accept a 400-hertz jolt from a generator brought up to the plane on a cart.

When the jet and the generator are connected, the fully fueled 500,000-pound plane comes alive. Dials twitch, screens flicker, fans hum, and circuits are energized. Eight turbofan jet engines sputter to life. A race against time to get the jet airborne has started, and the entire crew works toward an on-time takeoff. Checklists are yelled, switches hit, buttons mashed, and levers pulled. This is a ballet of sorts: Think of starting eight 1962 Ford Thunderbirds, 64 steam gauges, and three computers from 1983 in 40 minutes and making sure they’re in sync with one another—and five overheated aviators.

The dragon eats about 4,000 pounds of fuel just sitting and waiting to go airborne while the crew does final checks on gauges, electronics, and navigation systems. Finally,

The B-52H can carry up to 70,000 pounds of conventional and nuclear weapons, including air-launched cruise missiles armed with W80 nuclear warheads and the B61 nuclear bomb. Both the B61 and the W80 were designed by Los Alamos. (Photo: U.S. Air Force)



a message pops up in a bright green font on one of the navigator's 1960s-era 10-inch displays: GO.

Crew, we are ready to taxi.

A B-52 doesn't actually take off from the ground—it scares the ground away from it.

Slowly—at the speed of a brisk walk—we begin to move. As we roll onto the runway, the crew performs one last check: switches, circuit breakers, fuels, electronics, navigation, final buddy check. I nod to George, who is seated next to me in the lower cockpit. Like the three men upstairs, we are both buckled in and wearing fire-retardant flight suits, oxygen masks, and helmets with the visors pulled down. I am sweating profusely.

“Havoc 92,” air traffic control says into our headsets. “You are cleared for takeoff!”

We begin the manual takeoff procedure. Timing is initiated on a stopwatch to check thrust against a known standard, 64 steam gauges are evaluated, and the decision to go airborne is made.

I like to think that a B-52 doesn't actually take off from the ground—it scares the ground away from it. At a certain speed, the wings—even though they are so heavy with fuel—begin to fly. Then the fuselage unsticks, and suddenly the plane is in the air. The smooth transition of a slight nose down, tail-high climb is taking over, and the bounds of Earth are pushed away at 180 knots. The dragon is alive!

As we rise above 10,000 feet, we remove our oxygen masks because the cabin is now pressurized. The point of no return is long gone; we will be in the air until we burn enough fuel to come back down. We can't dump fuel like other jets, and we can't land if The Devil's Own weighs more than 290,000 pounds (because our brakes and parachutes can't bring that much weight to a stop). We are airborne for the next 24 hours. The fun is just starting.

We level off at 35,000 feet, all systems in the green, with checks ongoing. Now is the time to relax a bit—which is easier said than done now that everything we're wearing has been soaked through with sweat, the outside temperature has dropped to minus-50 degrees, and we are freezing inside the plane.

“Give me a shot of heat,” I yell into my headset, and the pilots let in a blast of scorching exhaust off the engines, which is the only way to “regulate” the plane's internal temperature.

Somewhere over the Pacific

The B-52 is loud—like a 1976 AC/DC concert front-row-by-the-speakers loud. Normal cruise noise is about 140 decibels, so we wear earplugs and silencers with a helmet or headset



This custom uniform patch was designed by Instructor Radar Navigator Kerry Baker (93d Bomb Squadron at Barksdale Air Force Base) and depicts Miller Time—the point in a B-52 mission when the crew is headed home.

(Photo: bomberpatches.com)

at all times to be able to communicate. Five crew members, three radios, and air traffic control are talking nonstop.

“System check,” the copilot yells at the top of the hour. We take a quick inventory of the plane's systems. Defense says they are good. Offense has a problem.

“Pilot, this is the navigator, we have a situation,” I say. “There are 39 bombs on this jet.”

The crew is silent.

Then I hear, “No s—, navigator, we are a bomber!” crackle through my earpiece, and the jokes start to fly.

I am in an ancient plane, hurtling in the heavens with less than an eighth-inch-thick sheet of aluminum between myself and certain demise.

The dragon is now moving at 400 mph into the wind. The B-52's ancient computer cannot calculate distances from one geographic latitude and longitude point to another, so I perform distance and time calculations every couple minutes using a 1953 E-6B flight computer (essentially a slide rule).

Using my brain like this—trying to be “in front” of the jet at all times—is what I like best about this job. I'm a frontiersman, in a sense. I can make my way without modern equipment. Sure, the B-52 could be updated with fancy new computers, but if the old system ain't broke, why fix it? Plus, it



A B-52 Stratofortress leads a formation of aircraft during a refueling exercise. The tanker's boom is extended toward the B-52. (Photo: U.S. Air Force)

costs an arm and a leg to nuclear-certify new technology, and nobody in Washington wants to pay for that.

But then again, every large bump, weird noise, and bad smell are reminders that I am in an ancient plane, hurtling in the heavens with less than an eighth-inch-thick sheet of aluminum between myself and certain demise. I think of a paper clip bending back and forth, only so many times before...

Snap!

Back to reality. I am hungry! I yell at the EWO to start the toaster oven, a tiny hotbox with one temperature: about a billion degrees. We throw in frozen pizza bites that come out completely charred but are still popsicles on the inside. My favorite!

To refuel a B-52, another plane joins us at a predetermined rendezvous point in the air.

As the mission continues, so do problems and emergencies: Pilot, the No. 5 engine oil pressure is low; we need to shut it down to save the engine. Navigator, one of the internal

navigation systems is running away and is now 20 miles off location. EWO, your cooling system is down, and your ectoplasmic *Ghostbusters* goo is leaking on my boots.

Emergency checklists start to make the flight interesting. What are go or no-go criteria to finish the mission? In this case, go is six engines, two good navigation systems, and five electronic detectors. We continue on.

Water, land, and more water continually pass below the dragon as she lumbers through the air. About 10 hours into the flight, we hear: "Havoc 92, this is Gasser 11. We are on time and ready to give you some fuel."

To refuel a B-52, another plane—in this case, a 1959 KC-135 tanker from Okinawa, Japan—must join us at a predetermined rendezvous point in the air. We slow down to our refueling speed of 450 mph. No computers control this meeting: eyes, ears, and hands move these two planes to within 12 feet of each other. Above us, the tanker's boom (rigid hose) is extended, and the dance starts.

The dragon is guzzling 22,000 pounds of gas an hour; we need to receive 120,000 pounds from this tanker to make our next refueling point. After making contact via a receptacle in the top of our plane, we receive gas at 5,000 pounds a minute.

DECLASSIFIED

Fewer than 25 minutes later, we hear “Havoc 92, you have received 121,000 pounds of gas!”

“Have a great day,” continues the KC-135 pilot. “Gasser 11 out.”

Approaching the target

Every country has an air identification zone that begins 12 nautical miles off its landmass. Planes entering an ID zone are interrogated so that the country knows who is in its airspace. As we approach South Korea, we hear: “Havoc 92, this is Korean Defense Identification Zone. Turn right heading 350 [degrees] until you intercept your friends.”

These friends are allied F-16 fighter jets that have taken off from South Korea and will fly beside us as we approach North Korea.

B-52s are the watchdogs. Every day, we are in the air, defending our country.

“Roger, Havoc 92 is searching for friendlies,” Jane says.

“Pilot, I have something off our nose at 12 miles,” the EWO says. “I have visual on a flight of four F-16s forming on us, two off each wing.”

“Falcon 31, it is good to see you,” Jane says to one F-16 crew.

“Roger Havoc, we picked you up 50 miles ago by your contrails,” says the F-16 pilot, referencing the B-52’s four distinct white contrails streaking across the sky.

Flying in formation with the fighters is easy. They fly off our wings as we head north to the DMZ. It’s time to cast a shadow on our Northern “friends.”

Knocking on North Korea’s door

Although we are unarmed, as far as North Korea is concerned, we have a plane full of nuclear weapons. As we approach the 38th parallel, [REDACTED]

[REDACTED] the dragon, [REDACTED]
[REDACTED] North Koreans
[REDACTED]

Night’s Watch

The eight-hour flight back to Guam—or Miller Time, as we call it—is lower stress, but nothing compares with unstrapping from the jet and stepping onto the tarmac.

We have two days before leaving on our next mission. The first day is spent catching up on paperwork, computer training, and performance reports. The second day, we’re back in the office, mission planning and chair flying again.

If I have the energy, I will stay up late to call my parents in Florida (I’m deployed to Guam for six months, so visiting them is out of the question). The 14-hour time difference can make staying in touch difficult, but I am always thankful to hear their voices.

My [REDACTED]-year-old mother would never sleep if she knew that I fly a plane her same age to North Korea twice a week. I’m glad her understanding of the B-52 deterrence mission is vague.

But what gets under my skin is our government’s lack of understanding. People think “Air Force,” and they think of shiny fighter planes and Memorial Day air shows. B-52s are old and uninteresting in comparison. But B-52s are the watchdogs. Everyday, we are in the air, defending our country against enemies who want to destroy us. We are the faceless defenders of a mission that nobody in Washington wants to talk about because “nuclear” is considered a four-letter word.

We’re like the Night’s Watch in the *Game of Thrones* series—we are holding the enemy “behind the wall” through our deterrence missions. We are always present but rarely appreciated.

Winter is coming, and we are a necessity. ✦

~Whitney J. Spivey

* Classification markings/redactions are fictitious.

Navigating Los Alamos

This article was written largely from the perspective of Major Brad Haynes, who has served in the Air Force for 13 years and has 2,000 hours of flight time. Maj. Haynes came to Los Alamos National Laboratory in July 2015 on a one-year Air Force Fellowship, which is considered part of his professional military education. “Understanding that there are literally tens of thousands of people behind me when I set foot on that jet,” is Maj. Haynes’s biggest takeaway from his time at the Lab. “There are scientists, engineers, and machinists who are stewarding nuclear weapons for me to use with 100 percent confidence.”

